

OIL FIELD REMOVAL ACTIONS

“PLUGGING AWAY IN THE FOREST”

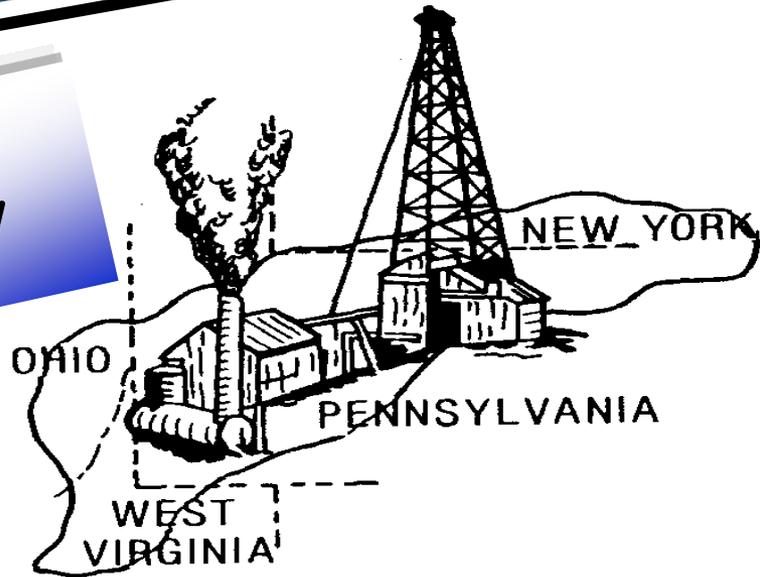
NY/NJ Regional Response Team Meeting

Norrie Point Environmental Center; Staatsburg, NY

March 9, 2020

Jeff M. Bechtel, OSC

U.S. Environmental Protection Agency
Region II



Oil Field Removal Actions

- ✓ Plugging Away in the Forest
- ✓ Operational Response Phases for Oil Removal
- ✓ Quick Preliminary Assessment/Removal Evaluation
- ✓ Operating versus abandoned facility
- ✓ Some essential definitions
- ✓ Consistent approach to oil field removal actions
- ✓ Discharge and/or substantial threat of discharge
- ✓ PRP-search versus identification of RP
- ✓ Funding the federal removal response action
- ✓ We're not alone in the forest
- ✓ Grand Finale

Plugging Away in the Forest

- “the forest” = southwestern New York oil patch
- Predominantly Steuben, Allegany and Cattaraugus Counties
- By the 1970’s many oil production facilities had become abandoned
- EPA conducted emergency response activities on a source-specific basis
- Emergency Response ensured the effective and immediate removal of a *discharge* on a source-specific basis...
- In some cases, EPA responded to discharges from the same production facility weeks, months or years later;
- In many cases, the plugging of one well resulted in other wells leaking; and
- In most cases, source-specific response actions did not provide sufficient information to identify the Responsible Party.
- As it became increasingly apparent that response on a source-specific basis to a discharge (e.g. plugging one or two wells) did not mitigate or prevent the *substantial threat* of discharges posed by an abandoned oil production facility....
- ...it became increasingly apparent that more comprehensive oil field removal evaluations and removal actions were required at oil production facilities.

40 CFR 300 Subpart D: Operational Response Phases for Oil Removal

§300.300 Phase I – Discovery or Notification

Leaking oil wells are usually encountered by landowners, sportsman or governmental entities and may be reported to EPA or the New York State Department of Environmental Conservation (NYSDEC)

§300.305 Phase II – Preliminary Assessment/Initiation of Action

- 1 OSC is responsible for promptly initiating a preliminary assessment
- 2 use available information, supplemented by on-scene inspection
- 3 to the extent practicable, identify PRPs
- 4 OSC may allow the RP to voluntarily and promptly perform removal
- 5 prompt notification to the natural resources trustees

40 CFR 300 Subpart D: Operational Response Phases for Oil Removal

§300.310 Phase III – Containment, Countermeasures, Cleanup and Disposal

Obtain funding from the NPFC; OPA90 Removal Project Plan \geq \$250,000

...controlling the source of discharge;

...placement of physical barriers to deter the spread of the oil and to protect natural resources and sensitive ecosystems;

...restrain the spread of the oil and mitigate its effects.

40 CFR 300 Subpart D: Operational Response Phases for Oil Removal

§300.315 Phase IV – Documentation and Cost Recovery

A documentation package is submitted to the USCG NPFC case officer containing detailed costs expended on a well by well basis along with all maps, logs, deeds and other pertinent case information.

§300.317 National Response Priorities

#1 safety of human life

#2 stabilizing the situation/preclude worsening

40 CFR 300 Subpart D: Operational Response Phases for Oil Removal

§300.320 General Pattern of Response

1 investigate report:

threat to public health, welfare, environment

type and quantity of polluting material

source of the discharge

2 classify size (minor, medium, major)

3 determine if RP/other Person is properly conducting the removal

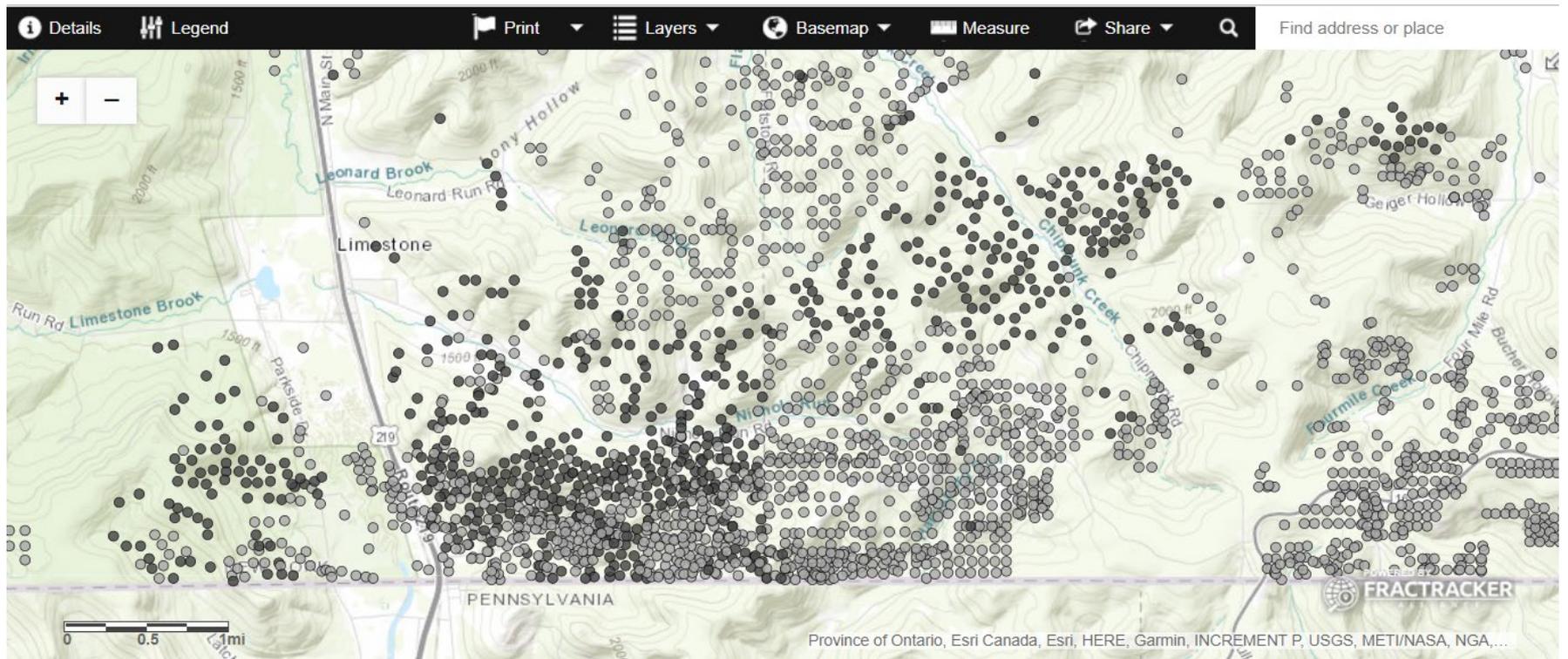
4 determine if State or political subdivision has capability to conduct any or all of the removal action

Don't ignore the rest of the oil production facility just to get to the well



...so, just what is an oil production facility anyway...and what are some essential definitions that will help me do my job

FRACKTRACKER.ORG



...so, how many oil production facility are there anyway?

Oil Production Facility

- 40 CFR 112 “...*all structures (wells, platforms, storage facilities, etc), piping (flowlines, gathering lines, etc) or equipment (workover equipment, separation equipment, gathering lines, and auxiliary non-transportation-related equipment) used in the production, extraction, recovery, lifting, stabilization or treating of oil, or associated storage or measurement, and located in a single geographical oil or gas field operated by a single operator.*”

Responsible Party

- (26) "**owner or operator**" means (B) in the case of an onshore facility, and an offshore facility, any person owning or operating such onshore facility or offshore facility;
- (27) "**person**" means an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body;
- (32) "**responsible party**" means the following:
 - (B) ONSHORE FACILITIES; In the case of an onshore facility (other than a pipeline), any person owning or operating the facility, except a Federal agency, State, municipality, commission, or political subdivision of a State, or any interstate body, that as the owner transfers possession and right to use the property to another person by lease, assignment, or permit.**

Responsible Party (continued)

- (32) "responsible party (continued)"
 - ... (F) ABANDONMENT; In the case of an abandoned vessel, onshore facility, deep water port, pipeline, or offshore facility, the persons who would have been responsible parties immediately prior to the abandonment of the vessel or facility.

Oil Production Facility & Responsible Party

- Let's look at a couple operating oil production facilities in the forest,
- and identify the owner(s) and operator(s),
- aka person(s)
- aka responsible party

Operating Oil Production Facility in the Forest



Identification of the owner or operator of the facility and, in the event of an oil spill, the Responsible Party (pretty straightforward)

Operating Oil Production Facility in the Forest



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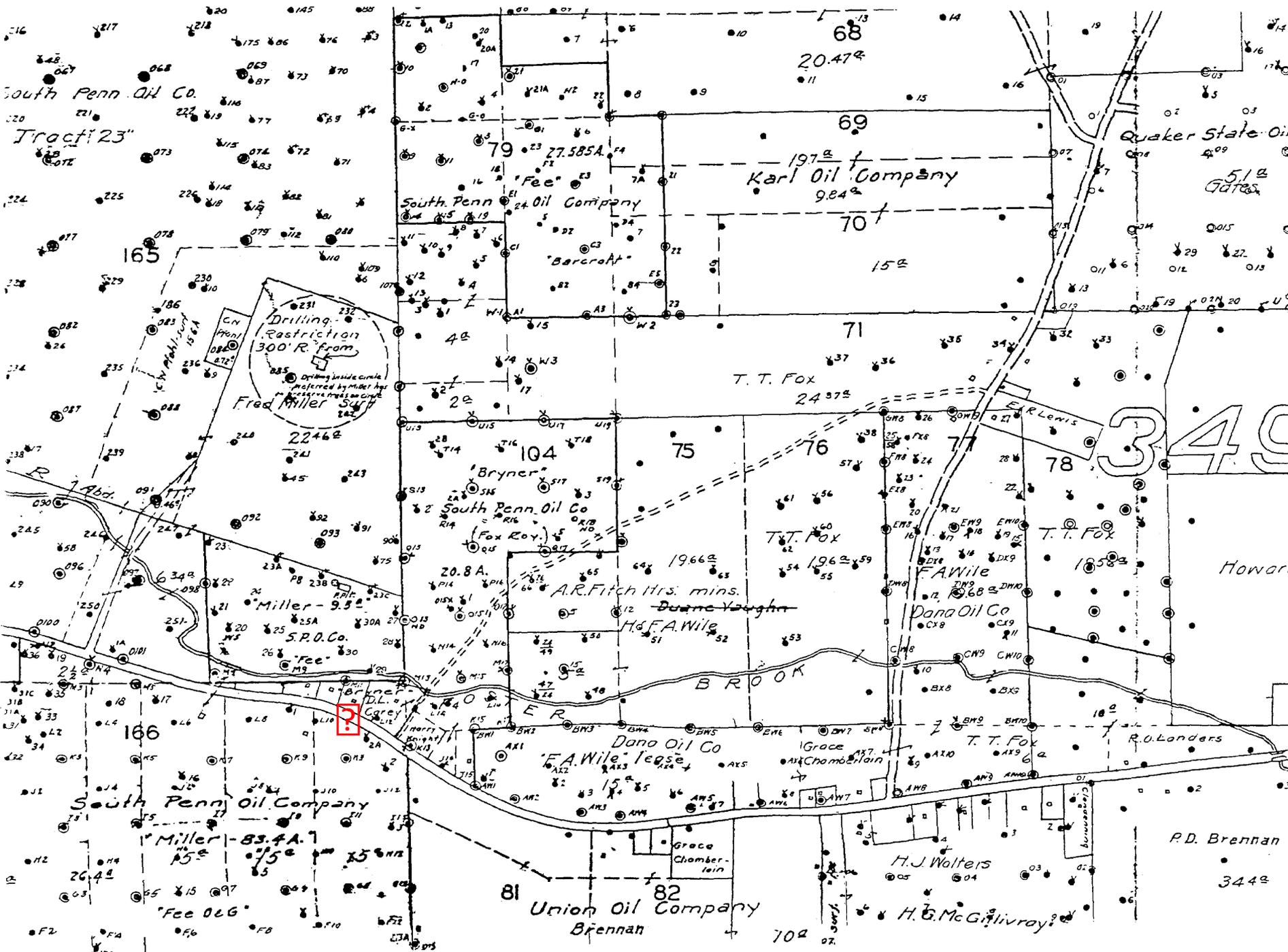
Operating Oil Production Facility in the Forest



Identification of the owner or operator of the facility and, in the event of an oil spill, the Responsible Party (less straightforward)

Abandoned Oil Production Facility

- **majority of incident reports = leaking oil well**
- **need to evaluate the entire facility.**
- **Responsible Party of an abandoned facility is defined as those persons who would have been responsible parties [owner(s) or operator(s)] immediately prior to the abandonment of the facility.**
- **the “PRP-search” and RP identification could get complex, and may involve interpreting information back to the 1800’s,**
- **identifying the abandoned oil production facility could be difficult as a function of time or other factors,even if you have an old lease map**



South Penn Oil Co.
Tract #23

Drilling Restriction
300' R. from
Fred Miller Surf

197.2 f
Karl Oil Company
9.84

Quaker State Oil
5 1/2 Gates

34C

South Penn Oil Company

Union Oil Company
Brennan

H.J. Walters
H.G. McGilivroy

R.D. Brennan
3442

Miller - 83.4 A.
"Fee 0.6"

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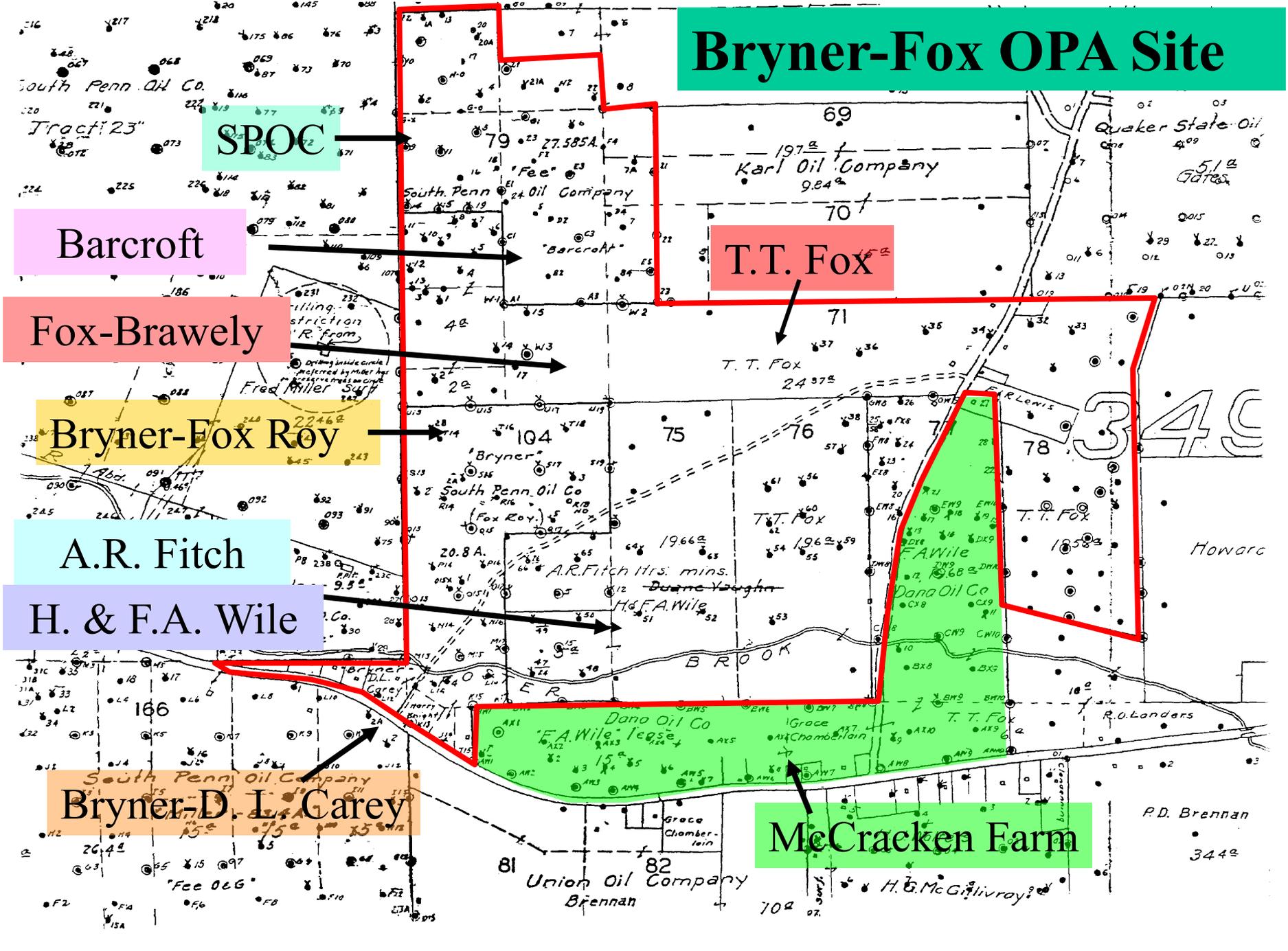
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Bryner-Fox OPA Site



SPOC

Barcroft

Fox-Brawely

T.T. Fox

Bryner-Fox Roy

A.R. Fitch

H. & F.A. Wile

Bryner-D. I. Carey

McCracken Farm

Bryner-Fox OPA Site

SPOC

Barcroft

Fox-Brawely

T.T. Fox

Bryner-Fox Roy

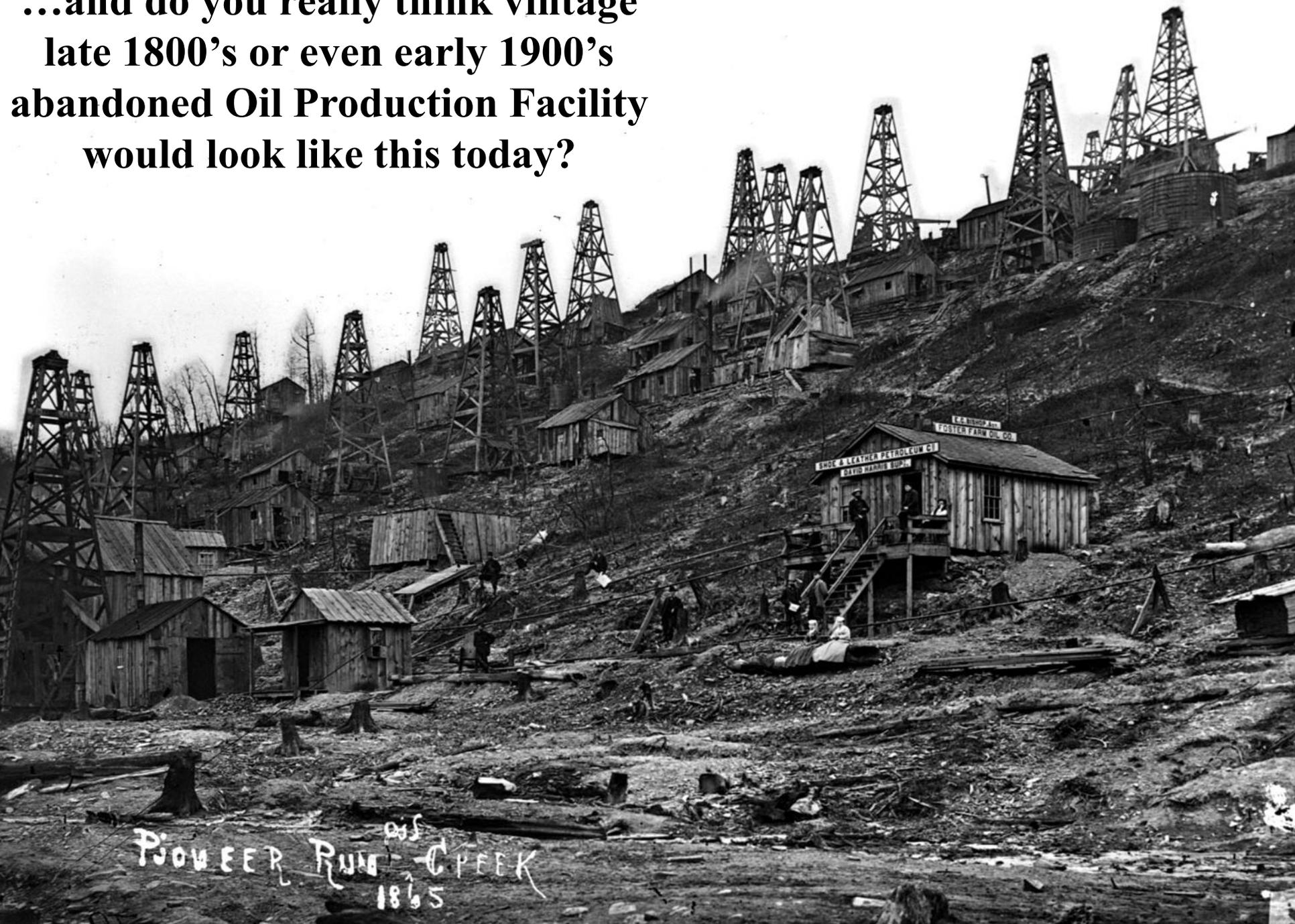
A.R. Fitch

H. & F.A. Wile

Bryner-D. I. Carey

McCracken Farm

**...and do you really think vintage
late 1800's or even early 1900's
abandoned Oil Production Facility
would look like this today?**



PIONEER RUN CREEK
1865

Vintage oil well today [Moose Polly Site]



Vintage oil well today [Closser Oil Lease Site]



Vintage oil well today
[Bailey Drive Oil Wells Site]



Nice pictures, but now we need to look at some more essential definitions...

OIL SPILL 101 - DEFINITIONS AND DETERMINATIONS

DISCHARGE

SUBSTANTIAL THREAT OF DISCHARGE

**NAVIGABLE WATERS
OF
THE UNITED STATES**

Discharge

- Discharge (as defined by OPA).... Includes but not limited to any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil into or on the navigable waters.
- Federal Removal Authority (OPA) – ensure effective and immediate removal of a discharge

Substantial Threat of Discharge

- EPA “definition”

40 CFR 112 requires SPCC Plan for any on-shore facility which due to its location *could reasonably be expected to discharge oil* in quantities that may be harmful.

➤ Federal Removal Authority (OPA) – mitigation or prevention of a substantial threat of a discharge

Substantial Threat of Discharge (continued)

- USCG definition

33 CFR 154.1020 defines substantial threat of a discharge to mean “any incident or condition involving a facility that *may create a risk of discharge of oil*. Such incidents include, but are not limited to storage tank or piping failures, above ground or underground leaks, fires, explosions, flooding, *spills contained within the facility*, or other similar occurrences.

- Federal Removal Authority (OPA) – mitigation or prevention of a substantial threat of a discharge

NAVIGABLE WATERS OF THE UNITED STATES

Definitions can be found at: CWA, OPA90, 40 CFR 300, 40 CFR 110, 40 CFR 112, 33 CFR 328, etc.

Effective December 23, 2019

Navigable waters....means waters of the United States, including the territorial seas. Includes:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;

NAVIGABLE WATERS OF THE UNITED STATES

- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

NAVIGABLE WATERS OF THE UNITED STATES

- (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
- (5) Tributaries of waters identified in paragraphs (a)(1) through (4) of this section;
- (6) The territorial seas;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section.
- (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

NAVIGABLE WATERS OF THE UNITED STATES

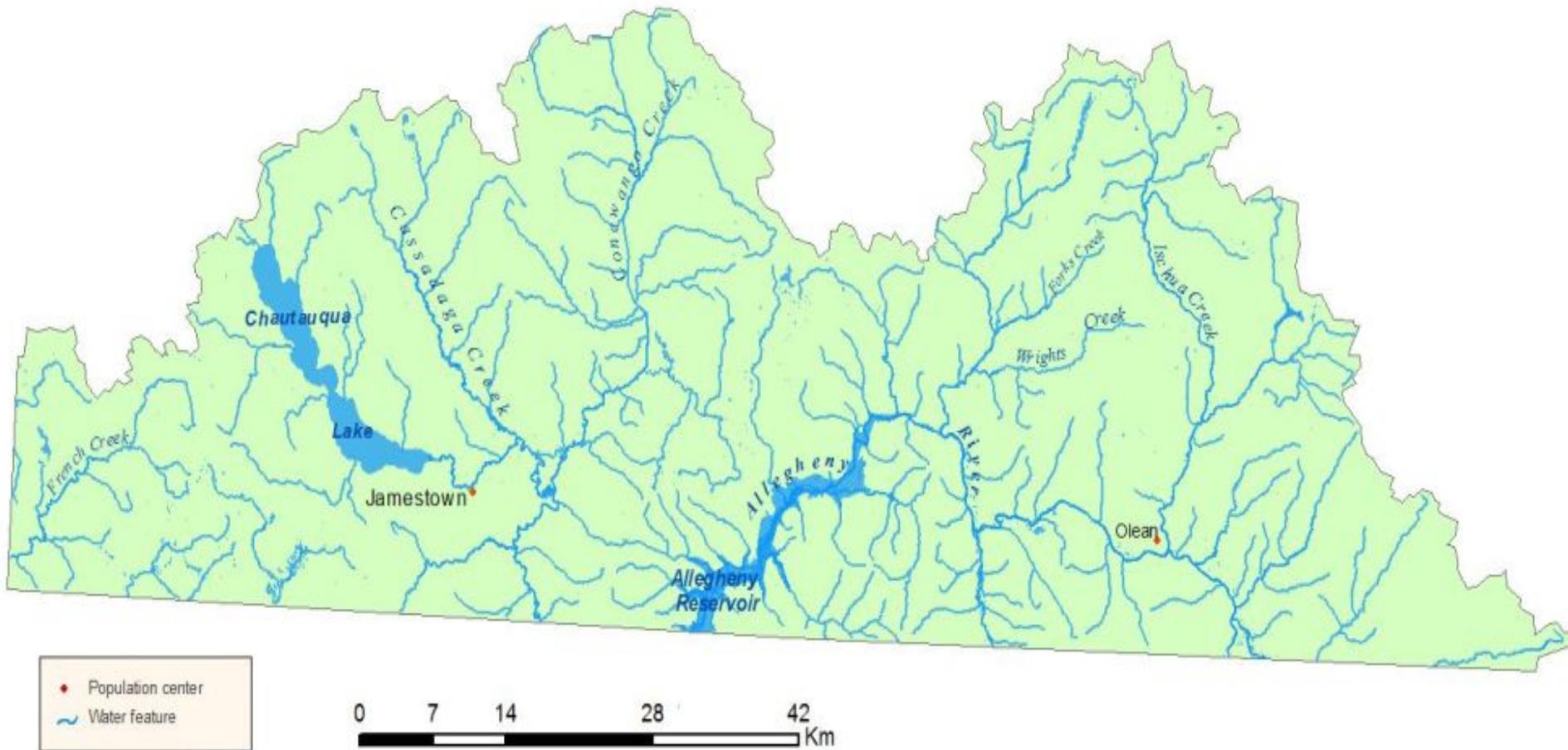
☐ Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

**...in other words, connect the dots,
except where expressly prohibited by law...**

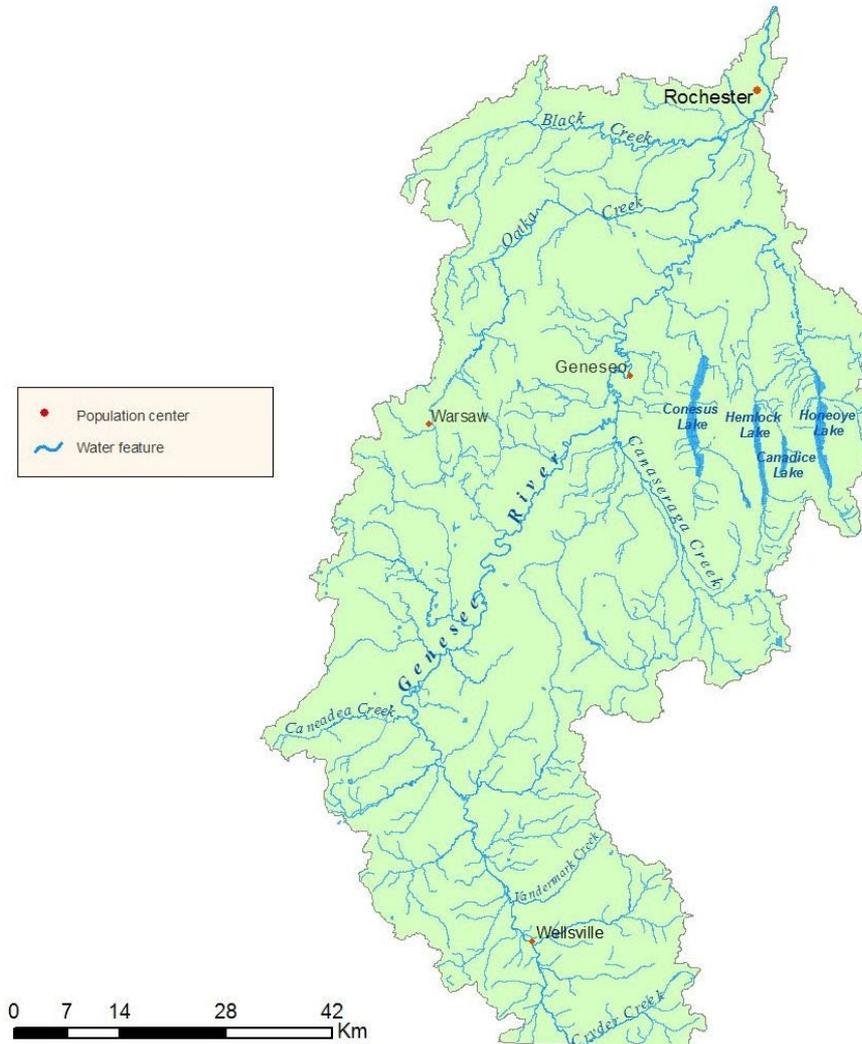
* Making it difficult to determine where the water ends and the wetland begins.



Allegheny River Drainage Basin



Genesee River Drainage Basin



In the meantime, the forest OSC's approach to Oil Field Removal Actions remains consistent with the NCP...

- ☑ Evaluate whether a discharge of oil occurred.
- ☑ Evaluate whether a substantial threat of discharge exists.
- ☑ Evaluate whether federal removal action is required.
- ☑ Evaluate whether a RP exists who can conduct the cleanup.
- ☑ Evaluate whether any other person can conduct the cleanup.
- ☑ Evaluate complexity of cleanup and associated costs (IGCE).
- ☑ Evaluate contract mechanism (ERRS, PRFA, etc.)
- ☑ Evaluate funding.....

... remains consistent with the established procedures...

- ☑ Ensure funds available from Regional allocation from Blanket IAG**
- ☑ Establish initial project ceiling (NTE \$25,000) and obtain FPN CANAPS via the USCG-NPFC web-site**
CANAPS communicates with EPA-HQ to assign EPA account
CANAPS communicates with USCG-NPFC to assign case officer
note: \$25,000 is for all costs (EPA, START, ERRS, etc)
- ☑ Implement contracts mechanism**
prepare SOW, Procurement Request and issue Task Order to ERRS
prepare SOW, PRFA and issue to qualified official of recipient agency
- ☑ Communicate removal activities with USCG-NPFC case officer**
- ☑ Project ceiling increases are implemented via USCG-NPFC**
implement ERRS, PRFA ceiling increases accordingly
- ☑ Prepare EPA costs reimbursement package**
- ☑ Prepare to assist USCG-NPFC cost recovery efforts**

...continues to use existing regulations for guidance when evaluating substantial threats of discharge...

☑ 40 CFR 112 *applies to any owner or operator of a non-transportation-related onshore or offshore facility engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products, which due to its location, could reasonably be expected to discharge oil in quantities which may be harmful, as described at 40 CFR 110, into or upon the navigable waters of the United States or adjoining shorelines...*

...continues to use existing regulations for guidance when evaluating substantial threats of discharge.

- ☑ 33 CFR 154 *applies to all marine transportation-related (MTR) facilities that because of their location, could reasonably be expected to cause at least substantial harm to the environment by discharging oil into or upon the navigable waters of the United States or adjoining shorelines...*
- ☑ 33 CFR 154 defines substantial threat of a discharge to mean “any incident or condition involving a facility that *may create a risk of discharge of oil*. Such incidents include, but are not limited to storage tank or piping failures, above ground or underground leaks, fires, explosions, flooding, *spills contained within the facility*, or other similar occurrences.

This is boring, let's look at some pictures and decide whether we're looking at a discharge or substantial threat of discharge

Discharge or substantial threat ? [Adrian Oil Lease Site]



Discharge or substantial threat ? [Ballard Oil Lease Site]



Discharge or substantial threat ?
[Burrows Oil Wells Site]



Discharge or substantial threat ? [Christian Hollow]



Discharge or substantial threat ? [Crooks Oil Lease Site]



Discharge or substantial threat ?
[Chipmonk Road Tank Battery Fire]



Discharge or substantial threat ? [Dodge Creek Oil Well Site]



Discharge or substantial threat ? [McGraw Oil Well Site]



Discharge or substantial threat ?
[Road 106 Oil Wells Site]



Discharge or substantial threat ?
[Bailey Drive Oil Wells Site]



Discharge or substantial threat ? [Seneca Indian Reservation]



Impacts on wildlife
[oiled hawk found on Weston Lot 7 Site]



Impacts on wildlife [local bear in oilfield]



Removal Evaluation at an Abandoned Oil Production Facility

- It's not just plugging wells in the forest!!!
- remember the oil production facility: “...all structures (wells, platforms, storage facilities, etc), piping (flowlines, gathering lines, etc) or equipment (workover equipment, separation equipment, gathering lines, and auxiliary non-transportation-related equipment) used in the production, extraction, recovery, lifting, stabilization or treating of oil, or associated storage or measurement, and located in a single geographical oil or gas field operated by a single operator.”

Removal Evaluation at an Abandoned Oil Production Facility

- (a) field-truth locations and GPS wells, tanks, separators, pits, pipelines, piping and other facilities (equipment appurtenant to production) on-site;
- (b) correlate on-site locations to locations depicted on old lease maps and other records;
- (c) review and interpretation of old lease maps, deeds and other records; and
- (d) preparation of well-site-specific or source-specific descriptions, sketches, maps, photos and other requisite documents to facilitate compliance with the MOU between EPA and the USCG and/or to ensure compliance with STATE well plugging regulations.
- (e) only the OSC can make the determination.

But remember... Oil Field Removal Actions
it's not just about plugging wells



remember...it's not just about plugging wells
oil/water separator and tank



remember... its not just about plugging wells
oil/water separator



remember... its not just about plugging wells
oil pit



remember... its not just about plugging wells
contaminated soil



remember... its not just about plugging wells
gathering and flow lines



remember... its not just about plugging wells
storage tanks



remember... its not just about plugging wells
catchment dike or berm



remember... its not just about plugging wells
waters and adjoining shorelines



Working along waterways

- **NATIONWIDE PERMIT 20**
- **Response Operations for Oil or Hazardous Substances**
 - Effective Date: March 19, 2017
 - (NWP Final Notice, 82 FR 4)
- 20. Response Operations for Oil or Hazardous Substances. Activities conducted in response to a discharge or release of oil or hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR part 300) including containment, cleanup, and mitigation efforts, provided that the activities are done under either: (1) the Spill Control and Countermeasure Plan required by 40 CFR 112.3; (2) the direction or oversight of the federal on-scene coordinator designated by 40 CFR part 300; or (3) any approved existing state, regional or local contingency plan provided that the Regional Response Team (if one exists in the area) concurs with the proposed response efforts.

Kudos to EPA Region 2

• Wells plugged per site		Cost per site	Average cost per site well
• West Union Oil:	91	\$ 5,003,219	\$ 54,980
• Curtis Farm:	141	\$ 4,126,245	\$ 29,264
• Dodge Creek:	1	\$ 44,216	\$ 44,216
• McGraw One:	1	\$ 59,973	\$ 59,973
• Ballard Oil:	31	\$ 1,378,875	\$ 44,479
• Weston Lot 7:	34	\$ 2,627,581	\$ 77,281
• Christian Hollow:	1	\$ 75,550	\$ 75,550
• Burrows:	16	\$ 717,712	\$ 44,857
• Homestead:	6	\$ 324,738	\$ 54,123
• Norton:	1	\$ 41,342	\$ 41,342
• Adrian:	27	\$ 1,520,936	\$ 56,330
• Crooks:	15 (one re-plug)	\$ 948,764	\$ 63,250
• Bailey Drive:	4	\$ 601,240	\$ 150,310
• Road 106:	6	\$ 455,936	\$ 75,989
• South Branch:	12	\$ 667,391	\$ 55,615
• Warfield:	24	\$ 1,719,956	\$ 71,664
• Moose Polly:	6	\$ 592,632	\$ 98,772
• Moose Tullar:	5	\$ 629,630	\$ 125,926
• Dillon McCarthy:	2	\$ 203,079	\$ 101,539
• Marsh Creek:	1	\$ 285,821	\$ 285,821
• Closser:	14	\$1,256,364	\$ 89,740
• Sue:	1	\$ 140,003	\$ 140,003 (7/31/19)
• TOTAL WELLS PLUGGED FROM 2005 THRU JULY 31, 2019:		440 oil wells on 22 leases	
• TOTAL EXPENDITURE THRU JULY 31, 2019:		\$ 23,484,873	
• AVERAGE COST PER WELL:		\$ 53,375 per well	

PLUGGING AWAY IN THE FOREST



the grand finale

PLUGGING AWAY IN THE FOREST

[Freeing curtain boom from ice]



PLUGGING AWAY IN THE FOREST

[Drill rig in use]



PLUGGING AWAY IN THE FOREST

[Service rig in use]



PLUGGING AWAY IN THE FOREST

[Pentaerythritol tetranitrate (PETN) explosive used to perforate casing]



PLUGGING AWAY IN THE FOREST

[Perforating a casing]



STILL PLUGGING AWAY IN THE FOREST

[Excavating to find wellhead]



PLUGGING AWAY IN THE FOREST

[Well access required construction of rip-rap jetty]



PLUGGING AWAY IN THE FOREST

[Inaccessible oil well]



PLUGGING AWAY IN THE FOREST

[There's still gas on these old wells]



PLUGGING AWAY IN THE FOREST

[On site bioremediation of oiled soils]



PLUGGING AWAY IN THE FOREST



PLUGGING AWAY IN THE FOREST



PLUGGING AWAY IN THE FOREST



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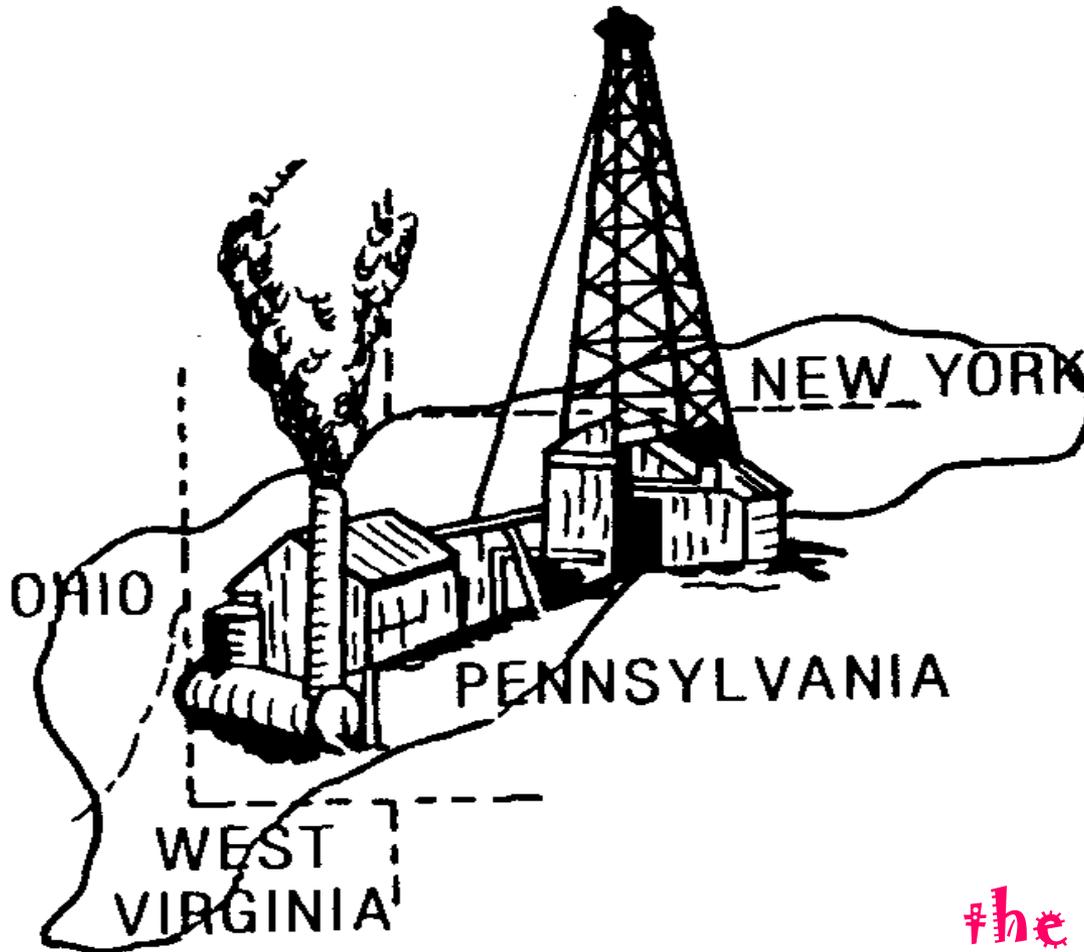


PLUGGING AWAY IN THE FOREST



ending off into the sunset

PLUGGING AWAY IN THE FOREST



the end ???

